

SPECIAL SPECIFICATION

SECTION 16424S

INDIVIDUAL MOTOR STARTERS

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INDIVIDUAL MOTOR STARTERS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Starters, contactors, and switches for motor control.
- B. Controller for each motor and piece of equipment where controller is not furnished as an integral part of the equipment and as indicated or specified to provide the Owner a complete and operating system.

1.02 REFERENCES

- A. NEMA ICS 2 - Industrial Control and Systems Controllers, Contactors, and Overload Relays Rated Not More Than 2,000 Volts AC or 750 Volts DC.

1.03 DESIGN REQUIREMENTS

- A. Provide starters of the type suitable for the application and environment.
- B. Provide NEMA 1 (general purpose) enclosure for interior use starters unless noted otherwise.
- C. Provide NEMA 12 (industrial) enclosure for interior and exterior use in production areas and where shown on Drawings or required by the interior environment.
- D. Provide NEMA 3R (water resistant) enclosure for exterior use starters unless noted otherwise.

1.04 SUBMITTALS

- A. Include data on relays, pilot devices, switching and overcurrent protection. Include trip ratings, size and UL listing.
- B. Indicate enclosure material finish and NEMA classification type.
- C. Provide operation and maintenance manuals for motor starters.

1.05 WARRANTY

- A. Warrant design, materials and workmanship for at least one year after acceptance by Owner from Contractor.

1.06 SERVICE CONDITIONS

- A. Design For Indoor Use
- B. Seismic Design per IBC 2000: Seismic Design Category D; Use Group 3; Site Class D.
- C. Altitude: 6000 feet above sea level.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Allen Bradley.
- B. Cutler-Hammer.
- C. General Electric.
- D. Square D.

2.02 MAGNETIC MOTOR STARTERS

- A. Magnetic Motor Starters: AC general-purpose, Class A, magnetic controller for induction motors rated in horsepower as indicated.
- B. Provide accessible terminals for wiring directly from the front of the starter.

- C. Contacts: Provide silver, cadmium oxide alloy, double break, non-welding contacts which will not require filing, dressing or cleaning throughout the life of the control equipment.
- D. Provide starter types as scheduled:
 - 1. Full Voltage Starting: Non-reversing type.
- E. Coils: Pressure molded, 120 volts, 60 hertz. Provide integral control transformer.
- F. Overload Relay: Provide bimetal overload relays in all three phases for three-phase full voltage starters, in ungrounded phases for single-phase full voltage starters and in all six legs for two-speed full voltage starters. Provide overload relays of the hand reset, trip-free variety so that blocking the reset mechanism in the reset position will not prevent the motor controller from dropping out if the motor is overloaded. Capability to field convert overload relays from hand to automatic reset is unacceptable.
- G. Auxiliary Contacts: Provide each starter with the required auxiliary contacts for the control functions indicated and required, including the holding interlock and pilot light interlocks plus two additional contacts, field convertible to normally closed or normally open NEMA ICS 2 controls. Provide capability to add auxiliary contacts without removing existing wiring or removing the controller from its enclosure.
- H. Selector Switches: HAND/OFF/AUTO for single-speed motors; HAND/OFF/AUTO with FAST/SLOW selector switch for two-speed motors; in front cover.
- I. Indicating Lights: RUN; red for single-speed motors; FAST/SLOW; red/amber for two-speed motors (push to test type) in front cover. Operate pilot lights by separate interlock not placed across the holding coil.
- J. Control Power Transformers: Provide integral 120 volt secondary control transformer with both primary and secondary fuses for each controller.

2.03 COMBINATION MOTOR STARTER

- A. Combine magnetic motor starter with disconnect in common enclosure as scheduled with adjustable trip, magnetic-only molded case, motor circuit protector.
- B. Provide combination starters with an IER of at least 100,000A (RMS) when used with feeder protective device indicated.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install motor control equipment in accordance with manufacturer's instructions.
- B. Select and install heater elements in motor starters to match installed motor characteristics.
- C. Mount with operating handle at 5'-6" above finished floor. Align the tops of all grouped starters. Install plumb and aligned in the plane of the wall in which they are installed.
- D. Provide supports of galvanized angle or other suitable material where mounting motor starters on wall or other rigid surface is impractical. Do not support starters from conduit alone. Locate motor starters that are mounted on equipment served so that the starter will not inhibit the removal of any service panel or interfere with required access.
- E. Mount in accessible location to allow sufficient room for maintenance on itself and adjacent items.
- F. Securely mount all starters indicated.
- G. Provide spare printed circuit board for each size variable speed drive.
- H. Coordinate with other trades as required for control and interconnections with motors provided under other Divisions.

END OF SECTION